

IMPLEMENTING MEASURES FOR IMPROVEMENT OF ENVIRONMENT AND MANURE MANAGEMENT IN SMALL SWINE FARMS

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Abstract: *Environmental management should be taken very seriously into account when are carrying out activities of animals growth. When it comes about animal farms, there are not few the challenges that can intervene in daily work. Manure from swine farms is a real challenge if it is desired also to protect the environment and animals' growth under the most optimal conditions. From the swine farms result from two types of manure: solid (coarse) and liquids. They are stored in the farm, in concrete platforms, which must have sufficient storage capacity to reach the later stages of processing and spreading on the field.*

Key words: *management, manure, swine, environement*

INTRODUCTION

In the category of the first domesticated animals by human entering also the pig, which is an omnivorous animal (can be fed with feed of animal and vegetable nature) [14].

China is the country with the highest consumption of pork, but also in Europe the consumption of pork is significant [9]. Although pigs can be grown almost everywhere, in some parts of Asia this is forbidden for religious reasons, which prohibit the consumption of pork.

If is not slaughtered, pig has a life expectancy of nearly 12 years.

For pig farming is needed for shelters which should not be too complicated, but witch must offer space to the animal, cleanliness, fresh air, heat [6].

In our country, the criteria for classifying of swine are the economic criteria and morpho-productive type [5,7].

If we refer to the economic criteria, breeds of swine were grouped according to the production capacity in:

- primitive breeds, close to the first pigs resulted from domestication (Stocli, Baltaretu).
- improved breeds, possessing the productive environments (Bazna).
- improved breeds, which group the breeds with superior productive qualities(Landrace, Large White) [1, 2].

If we refer to morpho-productive criteria, swine breeds are grouped into:

- breeds for meat, which at slaughter give carcasses with a high percentage of muscle tissue, over 65-70% (Landrace, Pietrain).
- mixed breeds, whose production is mixed, with a lower percentage of meat in carcass (50-55%) and with a higher layer of fat (Bazna).
- breeds for fat whose production at slaughter is in favor of fat having only 45-50% fat in carcass (Mangalita).

A challenge in livestock farms is the management of manure [3].Manure takes part from the category of complex fertilizers because it consists of more mixed material, material such as urine, litter, the composition of bedding and food of inferior quality [4]. Quality and quantity of manure depends on the following factors:

- animal species and their age, bedding, method and period of storage.

Manure is considered an organic fertilizer, complex and complete, being the most often used for potatoes, corn, beet, sunflower etc. Some of the most well known features of it are:

- the content of the entire complex of nutrients required for cultivated crops;
- the universal fertilizer, suitable for all types of plant and soil;
- usage especially on soils poor in humus, on the unstructured or degraded ones, those of clay type, making them more airy, sandy soils, improving their properties to retain water;
- introduced in soil, manure contributes to the improvement of structural state, to the increase of heat capacity and of the available water resources;
- beneficial effect on the macro activity and of the microbial one from soil, by stimulating them and the development of microorganisms.

Effectively solving of the problem of the manure leads to a better hygiene and inclusively to animal welfare. Also improves the climate from the stable reducing the levels of ammonia and nitrogen gas from the atmosphere. An efficient manure system preserves the values of manure, of feces. It also helps to the reducing of any leakage from the rivers, lakes or groundwater.

MATERIALS AND METHODS

To achieve this scientific paper we used information taken directly from the swine farm. I did make the research on the place of research in order to see how to manage manure from one swine farm with an effective of pigs about 24,000 heads. Managing the manure from swine farm of Curtici Agro Industrial Complex is done in a responsible way towards the environment and is intended to protect the environment at the highest standards.

RESEARCH RESULTS

Swine Complex is located on the Macea platform S.A. "Agro Industrial Complex" Curtici and occupies an area of 17.38 hectares of land, in Macea town, Arad County.

The swine capacity of the Curtici Agro Industrial Complex farm has a capacity of 27,000 heads and is occupied in a proportion of approximately 90% (89.81% - which means 24250 heads). This swine capacity is classified in the chart below:



Figure 1. The swine capacity of the Curtici Agro Industrial Complex farm

The farm has an intensive swine breeding, on age category and weight grouped as following:

- 5 halls for fattening
- 4 halls for gestation
- 4 halls young
- 1 maternity

Figure 2. The growth system of swine at the farm of Curtici Agro Industrial Complex

Management and environment protection are important factors for quality management, fact which can be easily found at the swine farm. It demonstrates an eco-conscious management through farm management actions that may have effects on the environment. The purpose is to protect natural resources, reducing pollution and environmental risks and preserving the health of employees and the surrounding population. In this regard, the farm owns two stations for droppings, but also a powerful incinerator.



Figure 3. Manure management and environmental protection in the farm

The manure from the housing is discharged through pipes or plastic pipes in the collection station; from the collection station are pushed into the treatment station.

The coarse part from separation station goes separately on a storage platform, and the liquid part goes from a lagoon in other, on three levels. In the third lagoon remains at least six months, after which is sprinkler on agricultural land.

The solid part of manure is spread on agricultural land, on stubble, after being assembled.

The incinerator has a high capacity (5 tons/batch) and is used for the treatment and disposal of non-hazardous biological waste from the activity developed in swine breeding farm. This incinerator can be used also for the treatment and disposal of perishable products of animal origin whose shelf life has expired. Also, the incinerator (model A10000) can be used for products derived, that are not designed for human consumption as follows:

- sludge from washing and cleaning;
- waste animal tissue;
- sludge from washing and cleaning;
- waste animal tissue;
- materials not matching for consumption processing;
- sludge from own tributaries treatment;
- wastes of whose collection and disposal are not subject of some special measures to prevent infections;
- biodegradable sludge from kitchen and canteen;
- oils and fats;
- sludge from septic tanks.

The incinerator has two rooms with independent burners. Gases and materials in suspension, resulted after primary combustion pass in afterburner chamber.

The installation is provided with a system for monitoring of the temperatures from the two rooms. The residence time of combustion gasses, of 2 seconds, ensures a proper burning of gaseous materials, so that the emission values to be within legal requirements.

CONCLUSIONS

Protecting the environment represents a primary problem of our days. Because of the growing number of global population, industries go through major tests of production and environmental protection.

In the field of animal husbandry is necessary a very effective environmental management on each branch, since the amounts of manure is becoming larger, along with the increasing of livestock.

The manure from livestock farms can be rationally used, and if it complies with the rules of treating these manure runs deep noted that they are useful and even necessary to soils.

For that the economic activity of farms to be not oriented only on profit, but also helps to preserve and improve the quality of life for future generations, there must be a more responsible attitude towards the use of natural resources and polluting materials, including animal manure.

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